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SUPPORT OF THE INTERNATIONAL LASER SCIENCE CONFERENCE

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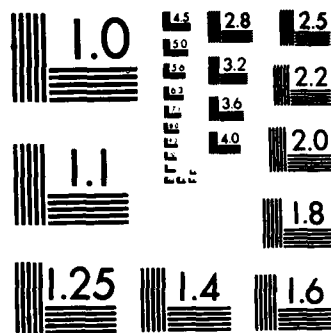
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Final Technical Report

for

Air Force Office of Scientific Research Grant

AFOSR-86-0060, "Partial Support of the
First International Laser Science Conference"

for

November 8, 1985 - May 7, 1986

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Abstract

The first International Laser Science Conference (Dallas, Texas, November 18-22, 1985), partially supported by the Air Force Office of Scientific Research, is described.

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Laser Science is an emerging technical area with a strong interdisciplinary flavor. It is based on a wide range of traditional interest areas, including (but undoubtedly not limited to) atomic and molecular physics, chemical physics, condensed matter physics, optical physics and engineering, plasma physics, physical chemistry, photochemistry, materials science and engineering, electrical engineering, gaseous electronics, quantum electronics, and electro-optics. At the core of laser science are the mechanisms of the lasers themselves and the interaction of the laser photons with matter (spectroscopy and photoprocesses). Surrounding this core is the wide spectrum of scientific applications of lasers, not only in the disciplines mentioned above, but also in virtually every other area of science and technology. The primary purpose of the ~~International Laser Science~~ Conference (ILS) is to survey annually both the laser and spectroscopy/photoprocesses core areas and a wide variety of selected scientific applications of lasers. Secondary goals include improved cross fertilization among the areas listed above and improved international scientific communication.

The first such ILS Conference (ILS-I), with 498 registered participants, was held at the University of Texas at Dallas Conference Center, November 18-22, 1985. The conference was a Topical Conference of the American Physical Society and was designated the Annual Meeting of the newly formed Topical Group on Laser Science of the American Physical Society. Carl B. Collins, University of Texas at Dallas, was Conference Chair, and also headed the local organizing efforts, with secretarial assistance by Lynda Horne and her colleagues. The Center itself provided an outstanding environment for the conference with both ready access to the meeting rooms and abundant space for informal discussion. Richard C. Powell, Oklahoma State University, was Conference Co-Chair, contributing administrative expertise, especially with financial arrangements. Rolf Gross, Aerospace Corporation, was International

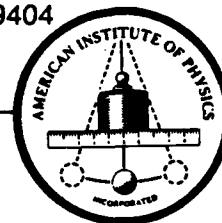
Co-Chair, a post designed to aid international participation in the conference. His diligent efforts provided a solid international base for this first meeting. The program was assembled by William C. Stwalley, Program Chair, and Marshall Lapp, Program Co-Chair, with advice from the Program Committee and the efforts of those members of the Program Committee who agreed to organize sessions. Receipt, compilation, correction, and acknowledgement of abstracts and assembly of the Program (printed in the Bulletin of the American Physical Society) was done by the secretarial staff at the University of Iowa Laser Facility, headed by Lynn Borders. Generous support for ILS-I was provided by the Air Force Office of Scientific Research, the Army Research Office, the National Science Foundation, the University of Texas at Dallas and the University of Iowa.

The conference consisted of five parallel sessions over five days and included four outstanding Plenary Talks. Poster sessions (including many post-deadline papers), which allowed for greater individual discussion, were presented late Tuesday. Session organizers were encouraged to make thoughtful development of session topics a prime consideration. Contributed talks were included only when they meshed well with invited and overview talks. The total number of papers accepted for presentation was 391.

The speakers at the ILS Conference were given instructions for preparation of camera-ready manuscripts. These manuscripts were then reviewed, for the most part by the Session Organizers and the International Co-Chair. The papers in the Proceedings were organized by subject, with the poster papers in some cases being rather arbitrarily assigned. Final responsibility for the physical assembly of the 258 papers in this volume went to Lynn Borders. The American Institute of Physics (see attached sheet) has just published the 768 page volume: Advances in Laser Science - I, W. C. Stwalley and M. Lapp, editors (AIP Conference Proceedings Number 146, New York, 1986).

Publications News

American Institute of Physics, 335 East 45th Street, New York, N.Y. 10017 (212) 661-9404



ADVANCES IN LASER SCIENCE - I

AIP Conference Proceedings Series No. 146

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Editors: William C. Stwalley, University of Iowa, and Marshall Lapp, Sandia National Laboratories

Proceedings of the First International Laser Science Conference held at the University of Texas, Dallas, November 18-22, 1985.

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Prompted by the emergence of laser science as a strong interdisciplinary technology, ADVANCES IN LASER SCIENCE-I is an outstanding analysis of the core of laser science and the surrounding spectrum of scientific application.

This volume surveys the mechanisms of lasers and the interaction of laser photons with matter (spectroscopy/photoprocesses). It explores a wide range of traditional interest areas, including atomic and molecular physics, chemical physics, condensed matter physics, optical physics and engineering, plasma physics, physical chemistry, photochemistry, materials science and engineering, electrical engineering, gaseous electronics, quantum electronics, and electro-optics.

Organized by subject categories rather than in chronological order, ADVANCES IN LASER SCIENCE-I consists of three plenary papers, six overview papers, eighty invited papers, and over 150 contributed papers covering theory, techniques, diagnostics, and analysis.

Section heads: Have All The Best Lasers Been Discovered? (Panel); Gamma Ray Lasers; X-Ray Lasers; Nonlinear Optical Techniques and Spectroscopies; Theory; Atomic Spectroscopy; Molecular Spectroscopy; Laser Chemistry, Ionization, Dissociation, and Collision Dynamics; Ultrafast Spectroscopy; Laser Diagnostics, Analysis, and Sensing; Lasers in Biology and Medicine; Laser Interactions With Surfaces and Particulates; Potpourri.

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